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ALEXANDRIA FIELD OFFICE

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BIOLOGICAL EVALUATION OF BLACK TURPENTINE ON THE EVANGELINE RANGER DISTRICT OF THE KISATCHIE NATIONAL FOREST

by

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Abstract

A 755 acre area of longleaf pine was examined on the Evangeline Ranger District, Kisatchie National Forest to determine the extent of damage due to black turpentine beetles. Scattered mortality was present, but trees are not currently infested. FPM recommends no control action be taken and the area be monitored periodically throughout summer.

INTRODUCTION

On March 2 and 7, 1984 Forest Pest Management entomologists met with Evangeline Ranger District personnel and evaluated an area where black turpentine beetle (BTB) damage was occurring. After intermediate cutting, sale units totaling 755 acres in size were attacked by BTB. The units are located in Compartments 370 and 37 approximately 2 miles west of Woodworth, LA and consist primarily of immature longleaf pine sawtimber. The area was examined to determine the reasons for the large number of beetle attacked trees and to make appropriate recommendations for control, if needed.

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METHOD OF EVALUATION AND ANALYSIS OF BTB INFESTATION

Twenty two point samples were taken using a BAF 10 prism in sale units 2, 7, 8, 9, 12, 15 and 16 (Figure 1). All tallied trees were examined for BTB attack and mechanical damage and site conditions in the sample area were also checked for rutting or soil compaction. Data recorded on individual attacked trees included estimated number of attacks (visible pitch tubes), attack height, presence or absence of ambrosia beetle attack, crown color, and BTB brood stage.

Technical Information

Identification - The black turpentine beetle, Dendroctonus terebrans (Olivier) is the largest of the 5 major bark beetles attacking southern pines. It is about 3/8 inch long, black, and has a rounded tail end.

Type of Damage - The BTB usually attacks freshly-cut pine stumps and stressed or weakened trees. The best way to identify the beetle is by large pitch tubes which are pinkish white to reddish brown and about the size of a 50-cent piece. The first attacks usually occur on the trunk within 18 inches of the ground and most are within 6' of the ground (Merkel, 1981).

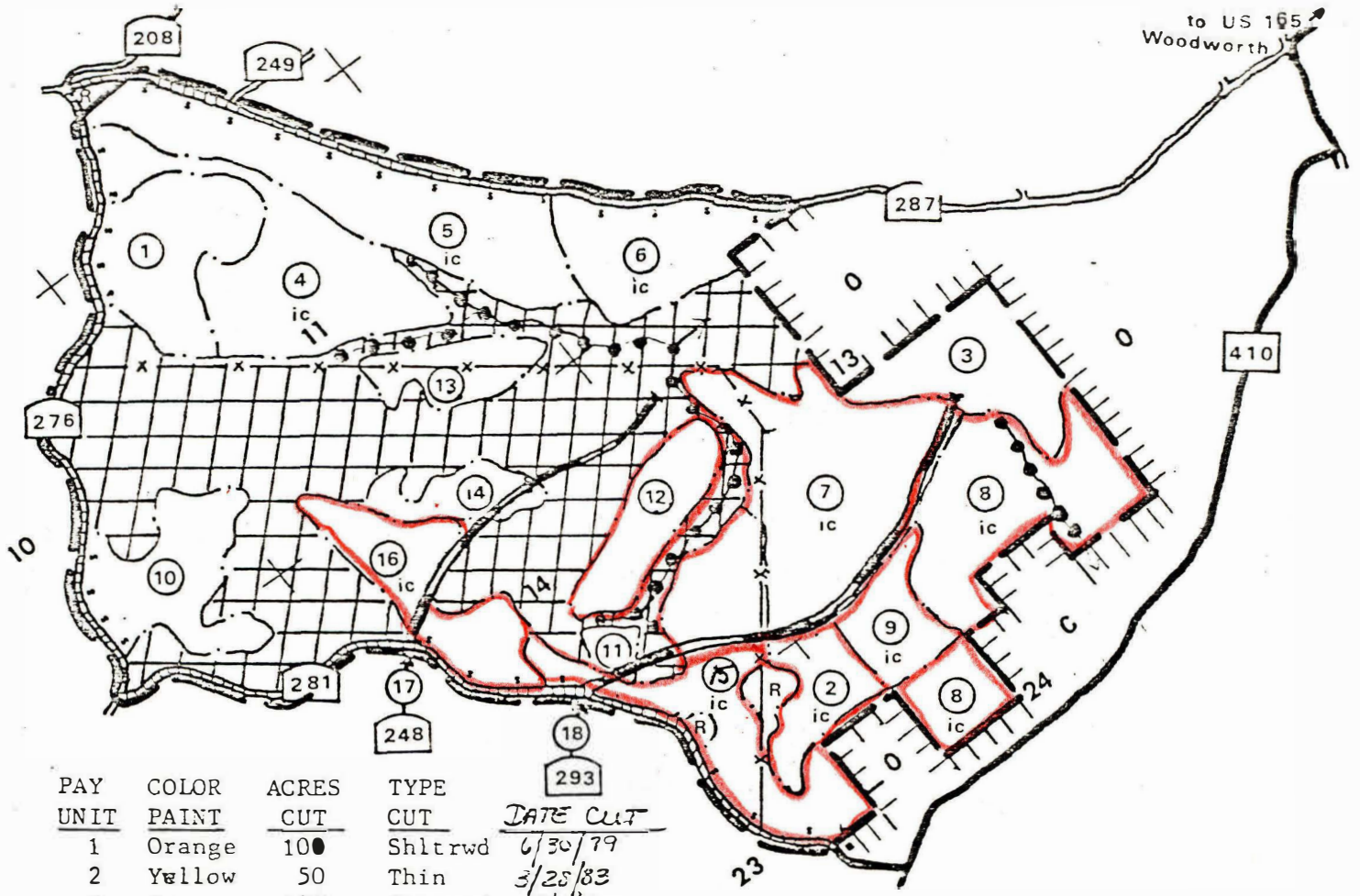
Biology - The attacking beetles bore through the outer bark into the inner bark. The attacking beetles lay clusters of eggs, the eggs hatch, and groups of larvae feed side by side and excavate a large contiguous area. The beetle takes 3-4 months to complete a generation.

RESULTS AND DISCUSSION

The intermediate cutting operation in the affected units on this sale area was conducted in March and April, 1983. Approximately 16 percent of the trees in units 15 and 16 were attacked while only 6 percent were attacked in the remaining units (Table 1). However, only 8 of the 22 tallied trees that were attacked had died. With the exception of 2 old lightning struck trees that were killed by Ips engraver beetles, there was no evidence of other bark beetle activity in the area.

The sale area was placed in a highly susceptible condition to BTB by logging during a wet period of the year. Almost all sample points showed rutting due to skid trails and 24 percent of the residual trees had basal scarring. Sale units 15 and 16 had more tree mortality which could be due to the presence of a stream and wetter soil conditions. Also there was a larger loblolly pine component in those units and loblolly is more susceptible than longleaf to BTB attack.

Figure 1. Sale Area Map Showing Black Turpentine Beetle Infested Payment Units.



PAY UNIT	COLOR PAINT	ACRES CUT	TYPE CUT	DATE CUT
1	Orange	100	Shltrwd	6/30/79
2	Yellow	50	Thin	3/28/83
3	Orange	100	Shltrwd	7/13/82
4	Blue	140	Thin	11/28/80
5	Yellow	160	Thin	3/30/79
6	Blue	85	Thin	9/16/83
7	Blue*	165	Thin	4/28/83
8	White	180	Thin	3/21/83
9	Orange	50	Thin	11/30/82
10	White	90	Clearcut	3/29/83
11	Yellow	15	Clearcut	3/29/82
12	Orange	65	Shltrwd	3/28/83
13	Yellow	40	Clearcut	5/9/83
14	Orange	40	Shltrwd	3/9/83
15	Blue*	155	Thin	4/28/83
16	Yellow	90	Thin	3/9/83
17	Green	7	Clearcut	(ROW)
18	Green	8	Clearcut	(ROW)

LEGEND FOR SALE AREA MAP

- Sale Area Boundary BT1.1
- Payment Unit Boundary BT1.1
- (9) Payment Unit Number BT1.1
- 276 Existing System Road BT5.12
- 248 Specified Road Construction BT5.2, AT9
- ic Intermediate Cut CT6.71
- Protected Stream Course BT6.5 CT6.5
- Slash Treatment Zone BT6.71 CT6.71
- Fence to be Protected BT6.22
- (R) Reserve Tree CT2.302
- Inoperable Area
- EOE Other Ownership
- Specified Road Reconstruction BT5.2, AT9
- Infested Payment Units

SALE AREA MAP

SALE NAME COMPARTMENTS 37 & 370

NATL FOREST KISATCHIE

RANGER DIST EVANGELINE

SCALE: 2 " = 1 MILE

Table 1. Summary of the ground check survey for black turpentine beetle damage on the Evangeline Ranger District, March, 1984.

	No. Trees Examined[1/]	Number Attacked	Number Dead
Area 1[2/]	101	16	6
Area 2[3/]	98	6	2

1/ Pine trees only

2/ Sale units 15 and 16

3/ Sale units 2, 7, 8, 9 and 12

Carl Fatzinger of the Southeastern Forest Experiment Station found that in Florida there are 3 seasonal peak flights of BTB (Figure 2). The first comes in early March to early April. This coincides with the intermediate cutting in the sale units, and provides good evidence that the trees became infested at that time. Many of the attacks were unsuccessful and not all the damaged trees were attacked. This indicates that BTB populations were not at an epidemic level.

Only 1 tree was found to be currently infested. The majority of the trees that have died had fading crowns or had lost their needles, however, other trees were observed that had been heavily attacked and had been secondarily infested by the ambrosia beetle Platypus flavicornus (F.). These attacks also occur at the base of the tree and are characterized by a fine white sawdust which accumulates around the trunks (Smith and Lee, 1972). These trees are also dead, but because crown fading does not begin as rapidly as with other southern pine bark beetles they are not as obvious.

RECOMMENDATIONS

Forest Pest Management recommends that no control action be taken at this time. Only the dead trees should be salvaged. Removing trees that were attacked but did not die is unnecessary because most will survive. Removal would leave holes in the stand creating a sparse stand condition in more heavily attacked areas. Salvage should only be conducted when soil conditions are dry, minimizing the impact on the site. It is also suggested that the sale area be periodically monitored during the next 6 months to determine if any reinfestation from BTB or additional mortality should occur.

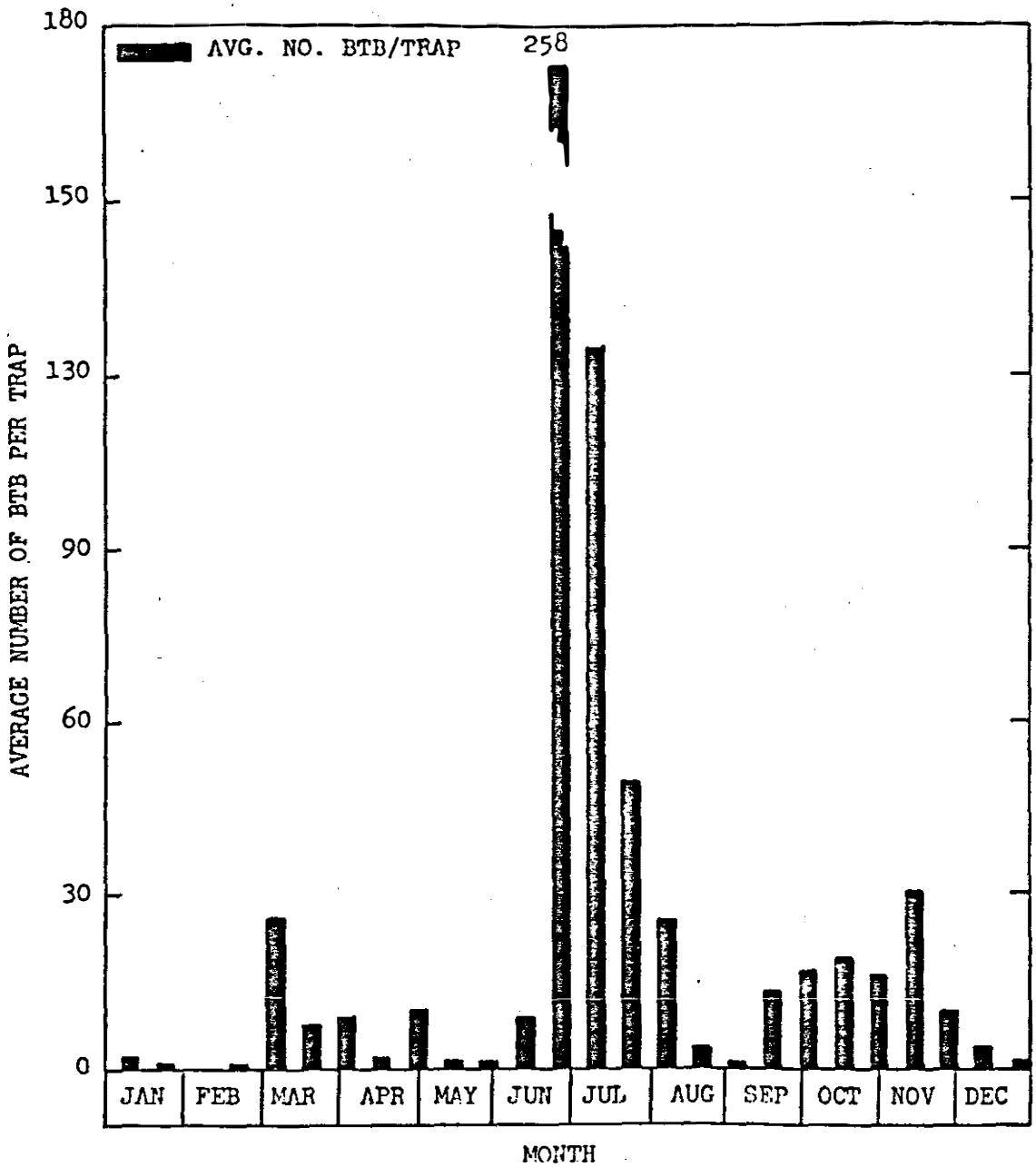


Figure 2.--Seasonal flight activity of BTB as evidenced from captures of BTB in host attractant traps near Olustee, Florida from 1980 to 1981.

NOT FOR PUBLICATION

REFERENCES

Merkel, E.P. Control of the black turpentine beetle. Georgia Forestry Commission, Research Division, Georgia Forest Research Paper 15; 1981. 6p.

Smith, R. H.; Lee III, R. E. Black turpentine beetle. U.S. Department of Agriculture, Forest Service, Forest Pest Leaflet 12; 1972. 8p.

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